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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project

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TITLE

FOREST INSECT SURVEY
ROGUE RIVER NATIONAL FOREST, OREGON, AND ADJACENT PRIVATE LANDS
SEASON OF 1942

by

William D. Bedard
Berkeley, California
March 18, 1943

SUBJECT-

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FOREST INSECT SURVEY
ROGUE RIVER NATIONAL FOREST, OREGON, AND ADJACENT PRIVATE LANDS
SEASON OF 1942

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ABSTRACT OF RESULTS

A. The 1941 Infestation (complete record)

1. Primary insect - Western pine beetle in ponderosa pine
2. Total pine timber killed on reporting area (Table 2)

a. Number of trees	11,725
b. Volume Bm.	6,926,000
c. Average volume per acre	16
d. Percent of total stand	0.29
3. Classification of infestation - low endemic
4. Trend of infestation - marked decrease from 1940.

B. The 1942 Infestation (partial record)

1. Primary insect - Western pine beetle in ponderosa pine
2. Probable trend - unchanged or slightly greater than 1941
3. Control work recommended - none.

FOREST INSECT SURVEY
ROGUE RIVER NATIONAL FOREST, OREGON, AND ADJACENT PRIVATE LANDS
Season of 1942

The annual forest insect survey of the ponderosa pine stands included in a portion of the Rogue River National Forest and adjacent private lands was made during the period from September 15 to 20, 1942. The object of this survey was to determine the extent and amount of current insect infestation within these pine stands in order to keep the records of annual gross losses complete and to provide data upon which could be based recommendations for treatment. The survey was made by Messrs. Boyd M. Adams, Clarence E. Wallace and the writer; and its successful completion was due in large part to the excellent material aid given by the Klamath Falls Unit of the Weyerhaeuser Timber Company.

The survey this year completed the record of 1941 loss and secured partial 1942 loss within the reporting area. Since most of the land within this area has been cut over, there remain only one 640-acre and two 320-acre permanent sample plots yet uncut. The estimates of current infestation which appear in this report are based on a one-hundred percent cruise of these plots supplemented by general observations on cut-over areas. Infestation trends were computed from the plot data and used together with previous loss records to make general estimates for the various units.

Estimates of virgin timber acreage have been corrected to January 1, 1941, through cut-over records furnished by the Klamath Forest Protective Association and the U. S. Forest Service.

Results of the Survey

The survey of sample plots showed that the gross loss of ponderosa pine due to western pine beetle attack during 1941 was extremely low in this area, ranging from 59 to 95 board feet per acre or from 0.31 to 0.43 percent of the stand (Table 1). Owing to the fact that the Timber Crater plot in the northeastern corner of Crater Lake Park showed an increased infestation, the sample plot data indicate an average infestation reduction of only 29 percent below the 1940 level. However, the infestation on these plots has reached such a low point that a few infested trees more or less changes the ratio to the previous year's loss rather drastically. Observations indicate that the general reduction was more comparable to the reduction shown by the other two plots, which were 61 percent on the Johnson Prairie plot and 57 percent on the Seven Mile plot.

This type of low endemic infestation is characterized by scattered single trees which are usually the more decadent individuals in the stand. In fact, frequently decadent trees which normally would be infested were examined and found to be free as yet from bark beetle attack. Infested trees were generally lightly attacked by the western pine beetle and frequently contained a miscellaneous mixture of insects comprising mainly Dendroctonus brevicomis, Melanophila sp., and Ips sp. and were not characteristic of the usual western pine beetle infested tree.

Estimates for the entire area (Table 2) indicated a gross loss of 0.29 percent of the stand on this Rogue River area as contrasted with 0.32 percent in the Klamath Basin as a whole. This represents an average loss of 16 board feet per acre, although considerable variation from this average was shown by the different units. Lowest board-foot-per-acre losses occurred in the bulk of the Keno area, although percent of stand losses were about average. Highest losses occurred in the Beaver Marsh area, but these are yet very low compared to former losses. The accompanying map shows the general distribution of infestation. It is to be noted that losses continue to be greatest on high hazard areas even though cut-over.

In terms of net-board-foot-per-acre loss, 1941 was one of the few years in the past two decades when ponderosa pine growth probably offset the insect-caused losses. It is difficult, however, to determine a net loss figure because so much of this reporting area has been cut over and there are no available data for ponderosa pine growth on cut-over lands. In addition, part of the growth is offset by losses due to other agents such as wind. Considering these factors, and the residual stands left on the cut-over areas, a net gain of about 25 board feet per acre appears to be a fair estimate for 1941. It is evident at once that this net gain is quite small even during a year of very low infestation and would indicate that this rate of net gain would require a long period of time to offset the tremendous losses which occurred during the past two decades.

Infestation Trend.

The trend of the western pine beetle infestation during the past ten years is shown in figure 2. This is expressed as a ratio of the percent of stand killed each year compared to the percent of stand killed in 1937. It is evident that the 1941 loss is nearly as low as in 1935 and 1937 which were the lowest of the decade. With such a low point having been reached, it is expected that the infestation has dropped to an irreducible minimum so that the 1942 loss will probably be about the same or slightly greater than in 1941.

Control Recommendations

With the western pine beetle infestation at such a low point and with no evidence of small localized areas of high concentration, no direct control work is needed in this area at the present time. Logging is proceeding into the Johnson Prairie country so that soon the bulk of the virgin timber will have been cut from this area. What effect this will have on the western pine beetle infestation is a matter of question. Hence, it will be desirable to continue examinations of this area to determine the effect of the beetle in the reserve stands.

Table 1: Pine timber killed by bark beetles on virgin sample plots -
Rogue River National Forest and adjacent private lands.

Area & Unit	CHECK PLOTS			LOSS FOR 1941				
	Plot	Timb'd. Acreage	Vol.of pine	No.of trees	Volume b.m.	b.m. per acre	Percent of stand	Ratio to previous year
KENO								
Johnson Prairie	Johnson Pr.	630	8,856,887	19	37,850	59	0.43	0.39
BEAVER MARSH								
Timber Crater	Crater Lake	320	8,416,460	17	26,230	82	0.31	1.62
FORT KLAMATH								
Seven Mile	Dry Camp	320	7,325,760	12	30,380	95	0.41	0.43
Total		1,270	24,599,107	48	94,460	74	0.38	0.71

Table 2: Insect-caused pine depletion -
Rogue River National Forest and adjacent private lands.

Area & Unit	PINE TYPE				ESTIMATED 1941 LOSS				
	Virgin	Cut-over	Total acres	Total M b.m.	No. of trees	Volume M b.m.	No. trees per section	b.m. per acre	Percent of stand
KENO									
Johnson Prairie	42,000	2,000	44,000	275,000	800	1,000	12	23	0.36
Other units	91,000	175,000	266,000	760,000	5,830	1,980	14	8	0.26
Total	133,000	177,000	310,000	1,035,000	6,630	2,980	14	10	0.29
BEAVER MARSH									
Timber Crater	9,000	16,000	25,000	175,000	1,020	530	30	21	0.30
Scott Creek	9,000	7,000	16,000	243,000	1,500	1,080	60	68	0.44
Kirk	500	1,500	2,000	10,000	150	46	48	23	0.46
Total	18,500	24,500	43,000	428,000	2,670	1,656	40	38	0.38
FORT KLAMATH									
Seven Miles	11,000	2,000	13,000	202,000	325	520	16	40	0.26
Crystal	16,000	2,000	18,000	350,000	900	980	32	54	0.28
Other units	20,000	20,000	40,000	333,000	1,200	790	19	20	0.23
Total	47,000	24,000	71,000	885,000	2,425	2,290	22	32	0.26
Grand Total	198,500	225,500	424,000	2,348,000	11,725	6,926	18	16	0.29
Total Klamath Basin	1,419,660	937,830	2,357,490	16,718,935	99,985	54,879	27	23	0.32

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT INVESTIGATIONS

WESTERN PINE BEETLE SURVEY

ROGUE RIVER SUBREGION, OREGON
AND WEST KLAMATH SUBREGION, OREGON

— AREA BOUNDARY — UNIT BOUNDARY □ CHECK PLOT

1941 INFESTATION

- NORMAL INFESTATION 0-25 TREES PER SECTION
- NORMAL INFESTATION 25-50 TREES PER SECTION
- LIGHT EPIDEMIC INFESTATION 50-100 TREES PER SECTION
- MODERATE EPIDEMIC INFESTATION 100-200 TREES PER SECTION
- HEAVY EPIDEMIC INFESTATION 200-400 TREES PER SECTION
- CUT-OVER AREAS AS OF JAN. 1, 1941

SCALE 1 INCH = 12 MILES



